Catalog

Jacobs Ladder Companic

$N_1 := 1 \quad N_2 := 5$

P1

R1 $N_2 \cdot \frac{N_1}{N_2 + N_1} = 0.833$

R2 $\frac{N_1^{\,2}}{N_2} = 0.2$

R3 $\frac{1}{N_1} \cdot N_2^{\,2} = 25$

R4 $\frac{N_2^{\,2}}{N_2 + N_1} = 4.167$

R5 $\frac{N_1^{\,2}}{N_2 + N_1} = 0.167$

P2

R0 $\frac{N_1^{\,2} \cdot N_2}{N_2^{\,2} + N_1^{\,2}} = 0.192$

R1 $\frac{N_1^{\,2}}{N_2} = 0.2$

R2 $\frac{N_2^{\,3}}{N_1^{\,2}} = 125$

R2e1 $\frac{N_2^{\,3}}{N_2^{\,2} + N_1^{\,2}} = 4.808$

R3 $\frac{N_2^{\,2}}{N_1} = 25$

R3e1 $\frac{N_1 \cdot N_2^{\,2}}{N_2^{\,2} + N_1^{\,2}} = 0.962$

R4 $\left(\frac{N_1^3}{N_2}\right)^{\frac{1}{2}} = 0.447$ R5 $\frac{N_1^3}{N_2^2} = 0.04$

P3

R1 $\frac{N_1 \cdot N_2^2}{N_1^2 + N_2^2 - N_1 \cdot N_2} = 1.19$ R2 $\frac{N_2^2 + N_1^2 - N_2 \cdot N_1}{N_1} = 21$

R3 $\frac{N_1^2 \cdot N_2}{N_2^2 + N_1^2 - N_1 \cdot N_2} = 0.238$ R4 $\frac{N_2^2 + N_1^2 - N_2 \cdot N_1}{N_2} = 4.2$

R5-6 $\frac{N_2^2}{N_1} = 25$ $\frac{N_2^3}{N_1^2} = 125$

R7-8 $\frac{N_2^3}{N_2^2 + N_1^2} = 4.808$ $\frac{N_1 \cdot N_2^2}{N_2^2 + N_1^2} = 0.962$

Catalog

Jacobs Ladder Companion

$N_1 := 1 \quad N_2 := 5$

P1

N_1 as Unit

R1 $N_2 \cdot \frac{N_1}{N_2 + N_1} = 0.833$ $\quad \frac{N_2}{N_2 + 1} = 0.833$

R2 $\frac{N_1^{\,2}}{N_2} = 0.2$ $\quad \frac{1}{N_2} = 0.2$

R3 $\frac{1}{N_1} \cdot N_2^{\,2} = 25$ $\quad N_2^{\,2} = 25$

R4 $\frac{N_2^{\,2}}{N_2 + N_1} = 4.167$ $\quad \frac{N_2^{\,2}}{N_2 + 1} = 4.167$

R5 $\frac{N_1^{\,2}}{N_2 + N_1} = 0.167$ $\quad \frac{1}{N_2 + 1} = 0.167$

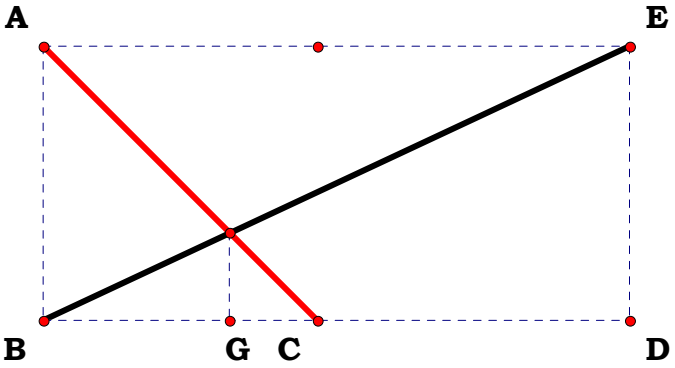
P2

		N_1 as Unit
R0	$\frac{N_1^2 \cdot N_2}{N_2^2 + N_1^2} = 0.192$	$\frac{N_2}{N_2^2 + 1} = 0.192$
R1	$\frac{N_1^2}{N_2} = 0.2$	$\frac{1}{N_2} = 0.2$
R2	$\frac{N_2^3}{N_1^2} = 125$	$N_2^3 = 125$
R2e1	$\frac{N_2^3}{N_2^2 + N_1^2} = 4.808$	$\frac{N_2^3}{N_2^2 + 1} = 4.808$
R3	$\frac{N_2^2}{N_1} = 25$	$N_2^2 = 25$
R3e1	$\frac{N_1 \cdot N_2^2}{N_2^2 + N_1^2} = 0.962$	$\frac{N_2^2}{N_2^2 + 1} = 0.962$
R4	$\left(\frac{N_1^3}{N_2}\right)^{\frac{1}{2}} = 0.447$	$\frac{1}{\sqrt{N_2}} = 0.447$
R5	$\frac{N_1^3}{N_2^2} = 0.04$	$\frac{1}{N_2^2} = 0.04$

P3

		N_1 as Unit
R1	$\frac{N_1 \cdot N_2^{\,2}}{N_1^{\,2} + N_2^{\,2} - N_1 \cdot N_2} = 1.19$	$\frac{N_2^{\,2}}{N_2^{\,2} - N_2 + 1} = 1.19$
R2	$\frac{N_2^{\,2} + N_1^{\,2} - N_2 \cdot N_1}{N_1} = 21$	$N_2^{\,2} - N_2 + 1 = 21$
R3	$\frac{N_1^{\,2} \cdot N_2}{N_2^{\,2} + N_1^{\,2} - N_1 \cdot N_2} = 0.238$	$\frac{N_2}{N_2^{\,2} - N_2 + 1} = 0.238$
R4	$\frac{N_2^{\,2} + N_1^{\,2} - N_2 \cdot N_1}{N_2} = 4.2$	$\frac{N_2^{\,2} - N_2 + 1}{N_2} = 4.2$
R5	$\frac{N_2^{\,2}}{N_1} = 25$	$N_2^{\,2} = 25$
R6	$\frac{N_2^{\,3}}{N_1^{\,2}} = 125$	$N_2^{\,3} = 125$
R7	$\frac{N_2^{\,3}}{N_2^{\,2} + N_1^{\,2}} = 4.808$	$\frac{N_2^{\,3}}{N_2^{\,2} + 1} = 4.808$
R8	$\frac{N_1 \cdot N_2^{\,2}}{N_2^{\,2} + N_1^{\,2}} = 0.962$	$\frac{N_2^{\,2}}{N_2^{\,2} + 1} = 0.962$

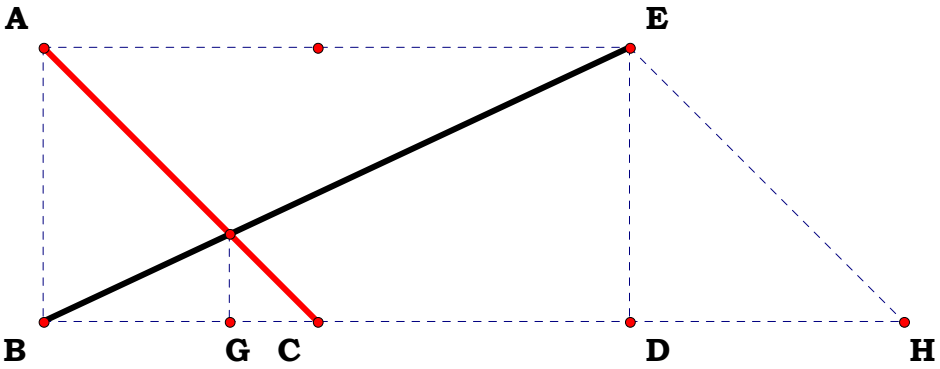
$$N_2 \cdot \frac{N_1}{N_2 + N_1} = 0.833$$



$N_1 \equiv 1$

$N_2 \equiv 5$

$AB := N_1 \quad AE := N_2$



$$BD := AE \quad DH := AB \quad BH := BD + DH \quad BC := AB \quad BG := \frac{BD \cdot BC}{BH}$$

$$BG - N_2 \cdot \frac{N_1}{N_2 + N_1} = 0$$

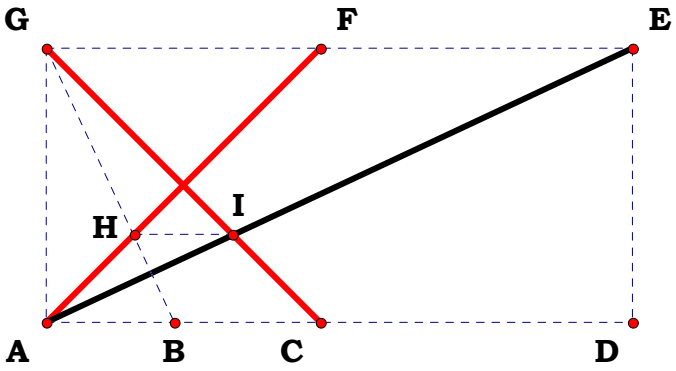
$$\frac{N_1^{\,2}}{N_2} = 0.2$$

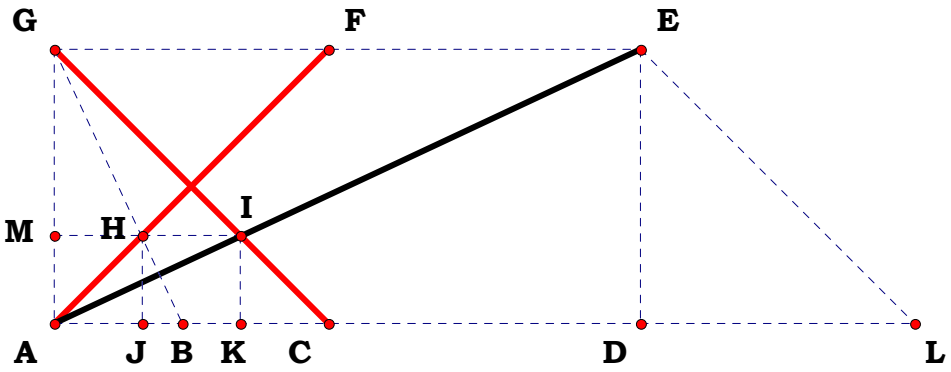
$N_1 \equiv 1$

$N_2 \equiv 5$

$AG := N_1 \quad AD := N_2$

$AC := AG \quad DE := AG$



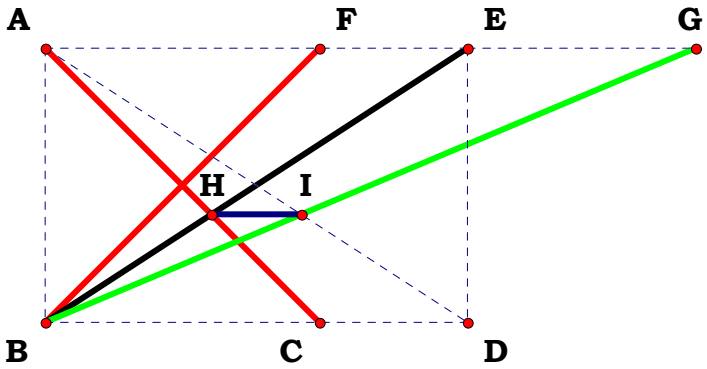


$AL := AD + AC \quad IK := \frac{DE \cdot AC}{AL} \quad HJ := IK \quad AJ := HJ$

$AM := AJ \quad GM := AG - AM \quad HM := AJ \quad AB := \frac{HM \cdot AG}{GM}$

$$AB - \frac{N_1^{\,2}}{N_2} = 0$$

$$\frac{N_2^{\,2}}{N_1} = 25$$



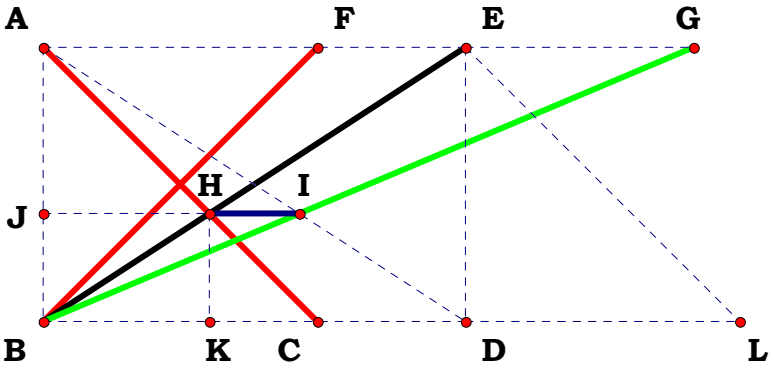
$N_1 \equiv 1$

$N_2 \equiv 5$

$AB := N_1$

$AE := N_2$

$BC := AB$

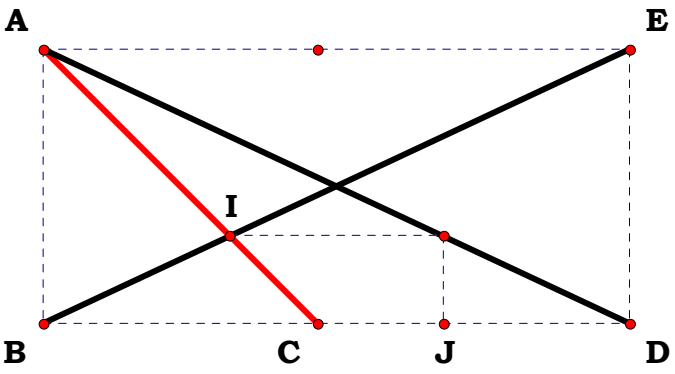


$DL := AB \quad BD := AE \quad BL := BD + DL \quad DE := AB \quad HK := \frac{DE \cdot BC}{BL}$

$AJ := AB - HK \quad JI := \frac{BD \cdot AJ}{AB} \quad BJ := HK \quad AG := \frac{JI \cdot AB}{BJ}$

$$AG - \frac{1}{N_1} \cdot N_2^{\,2} = 3.553 \times 10^{-15}$$

$$\frac{N_2^{\,2}}{N_2 + N_1} = 4.167$$



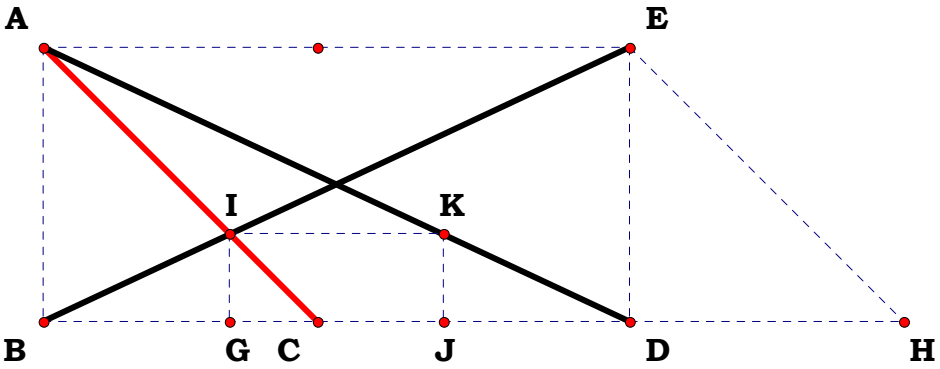
$N_1 \equiv 1$

$N_2 \equiv 5$

$AB := N_1 \quad BC := AB$

$DE := AB$

$AE := N_2 \quad BD := AE$

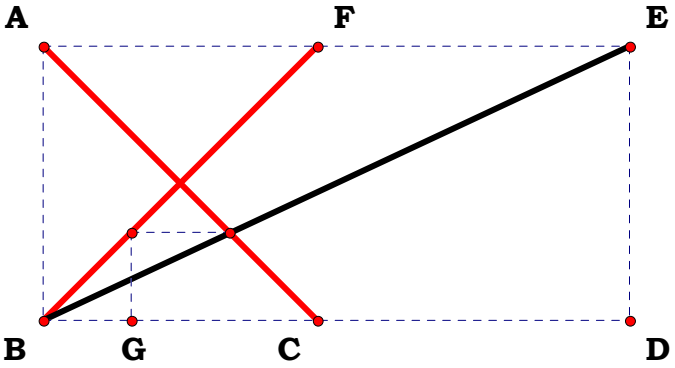


$DH := BC \quad BG := \frac{BD \cdot BC}{BD + DH} \quad GI := \frac{DE \cdot BG}{BD} \quad JK := GI \quad DJ := \frac{BD \cdot JI}{DE}$

$BJ := BD - DJ$

$$BJ - \frac{N_2^{\,2}}{N_2 + N_1} = 0$$

$$\frac{N_1^{\,2}}{N_2 + N_1} = 0.167$$

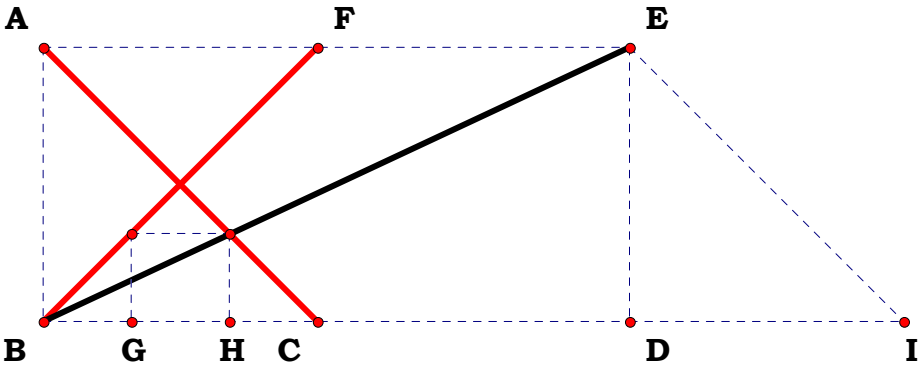


$N_1 \equiv 1$

$N_2 \equiv 5$

$AB := N_1 \quad BC := AB$

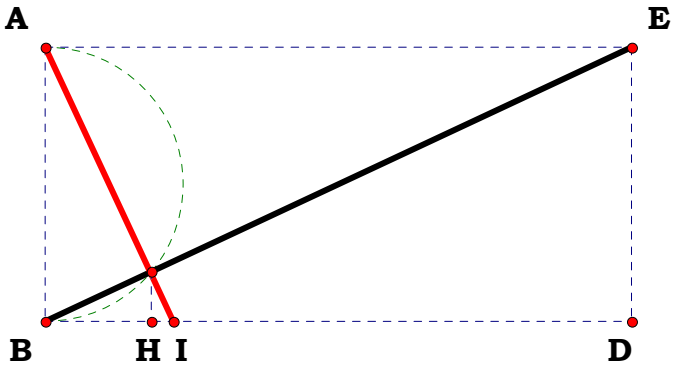
$AE := N_2 \quad BD := AE$



$$DI := BC \quad CH := \frac{BC^2}{BD + DI} \quad BG := CH$$

$$BG - \frac{N_1^{\,2}}{N_2 + N_1} = 0$$

$$N_1^{\,2}\cdot\frac{N_2}{N_2^{\,2}+N_1^{\,2}}=0.192$$



$N_1 \equiv 1$

$N_2 \equiv 5$

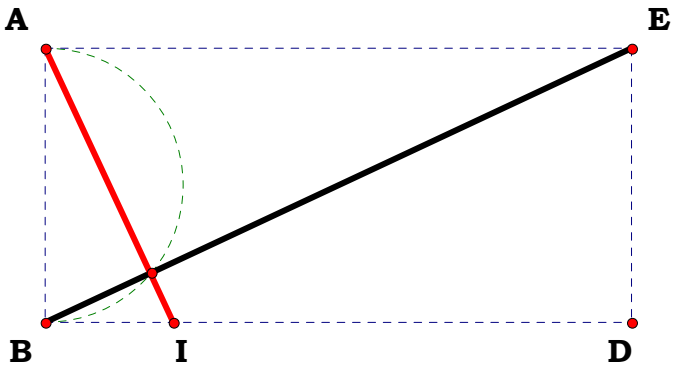
$AB := N_1 \quad DE := AB$

$AE := N_2 \quad BD := AE$

$$BI := \frac{DE\cdot AB}{BD} \qquad BH := \frac{BD\cdot BI}{BD+BI}$$

$$BH - N_1^{\,2}\cdot\frac{N_2}{N_2^{\,2}+N_1^{\,2}}=0$$

$$\frac{N_1^{\,2}}{N_2} = 0.2$$



$N_1 \equiv 1$

$N_2 \equiv 5$

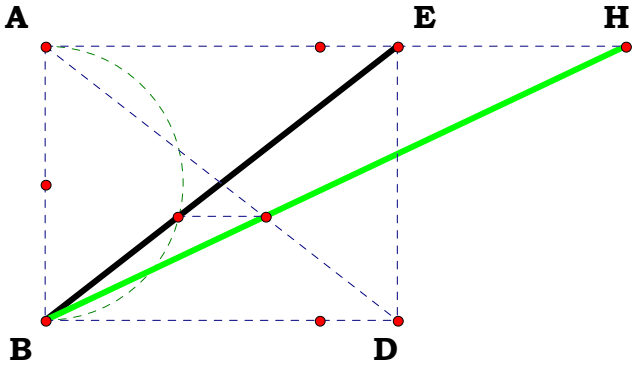
$AB := N_1 \quad DE := A$

$AE := N_2 \quad BD := A$

$$BI := \frac{DE \cdot AB}{BD}$$

$$BI - \frac{N_1^{\,2}}{N_2} = 0$$

$$\frac{N_2^{\,3}}{N_1^{\,2}} = 125$$

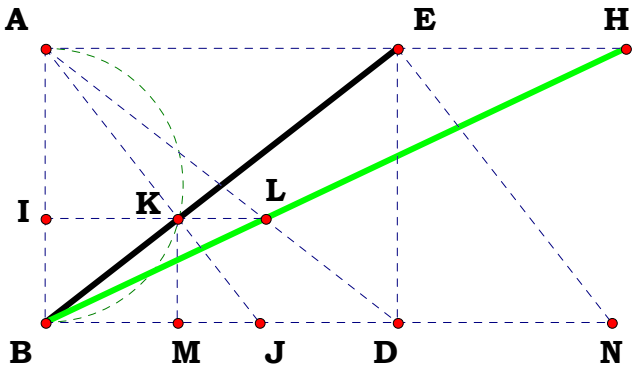


$N_1 \equiv 1$

$N_2 \equiv 5$

$AB := N_1 \quad DE := AB$

$AE := N_2 \quad BD := AE$



$$BJ := \frac{DE \cdot AB}{BD}$$

$DN := BJ$

$$BM := \frac{BD \cdot BJ}{BD + DN}$$

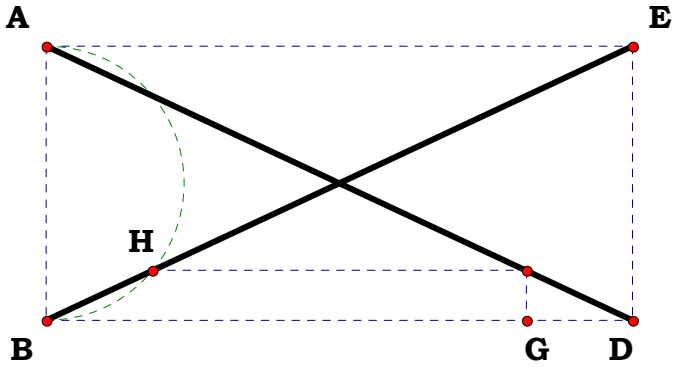
$$KM := \frac{DE \cdot BM}{BD}$$

$BI := KM$

$$AI := AB - BI \quad IL := \frac{BD \cdot AI}{AB} \quad AH := \frac{IL \cdot AB}{BI}$$

$$AH - \frac{1}{N_1^{\,2}} \cdot N_2^{\,3} = 1.421 \times 10^{-14}$$

$$\frac{N_2^{\,3}}{N_2^{\,2}+N_1^{\,2}} = 4.808$$

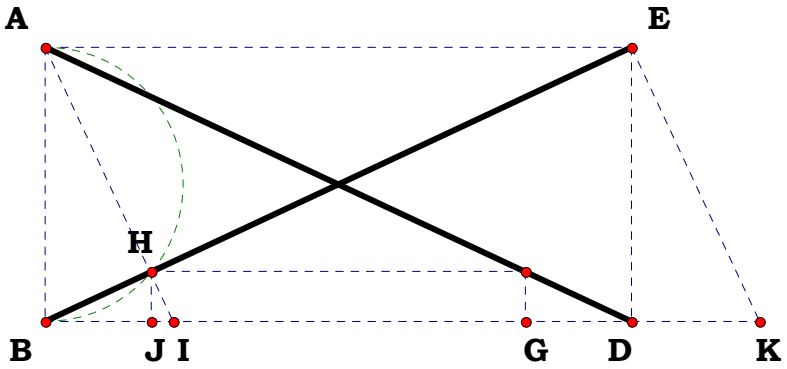


$N_1 \equiv 1$

$N_2 \equiv 5$

$AB := N_1 \quad DE := AB$

$AE := N_2 \quad BD := AE$



$$BI := \frac{DE \cdot AB}{BD}$$

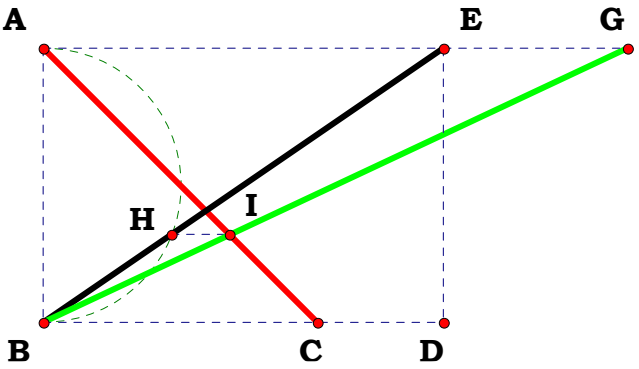
$BK := BD + BI$

$$BJ := \frac{BD \cdot BI}{BK}$$

$DG := BJ \quad BG := BD - DG$

$$BG - \frac{N_2^{\,3}}{N_2^{\,2}+N_1^{\,2}} = 0$$

$$\frac{N_2^{\,2}}{N_1} = 25$$



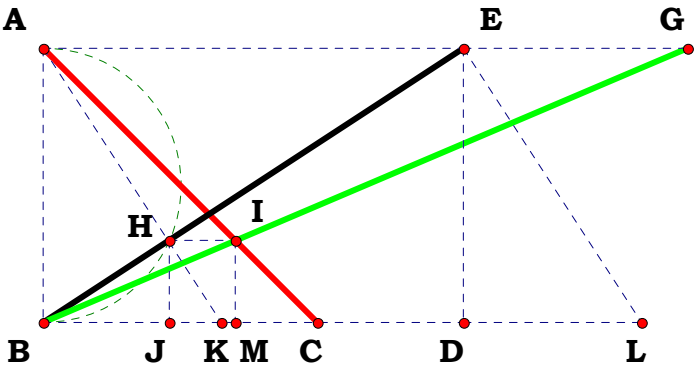
$N_1 \equiv 1$

$N_2 \equiv 5$

$AB := N_1 \quad DE := AB$

$BC := AB$

$AE := N_2 \quad BD := AE$



$$BK := \frac{DE \cdot AB}{BD}$$

$DL := BK$

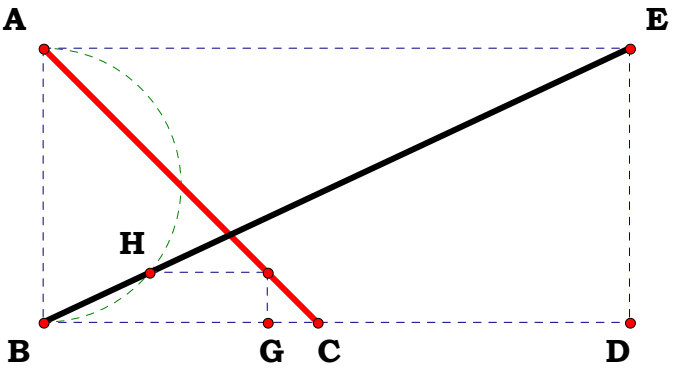
$$BJ := \frac{BD \cdot BK}{BD + DL}$$

$$HJ := \frac{DE \cdot BJ}{BD}$$

$IM := HJ \quad CM := IM \quad BM := BC - CM \quad AG := \dfrac{BM \cdot AB}{IM}$

$$AG - \frac{N_2^{\,2}}{N_1} = 3.553 \times 10^{-15}$$

$$\frac{N_1 \cdot N_2^{\,2}}{N_2^{\,2} + N_1^{\,2}} = 0.962$$



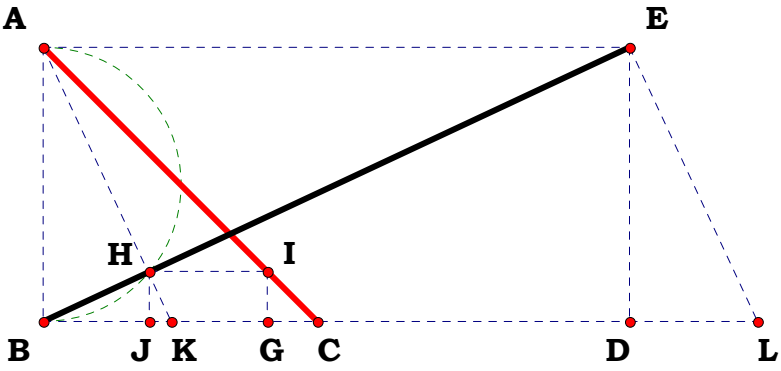
$N_1 \equiv 1$

$N_2 \equiv 5$

$AB := N_1 \quad BC := AB$

$DE := AB$

$AE := N_2 \quad BD := AE$



$$BK := \frac{DE \cdot AB}{BD}$$

$DL := BK$

$BL := BD + DL$

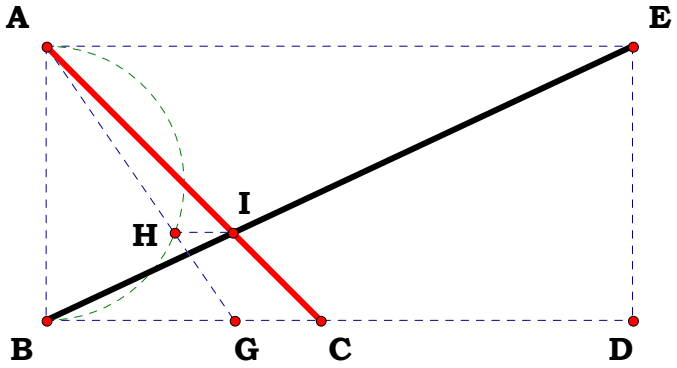
$$HJ := \frac{DE \cdot BK}{BL}$$

$IG := HJ \quad CG := I$

$BG := BC - CG$

$$BG - N_1 \cdot \frac{N_2^{\,2}}{N_2^{\,2} + N_1^{\,2}} = 0$$

$$\left(\frac{N_1^{\,3}}{N_2}\right)^{\frac{1}{2}} = 0.354$$



$N_1 \equiv 1$

$N_2 \equiv 8$

$AB := N_1 \quad BC := AB$

$AE := N_2 \quad BD := AE$

$DE := AB$

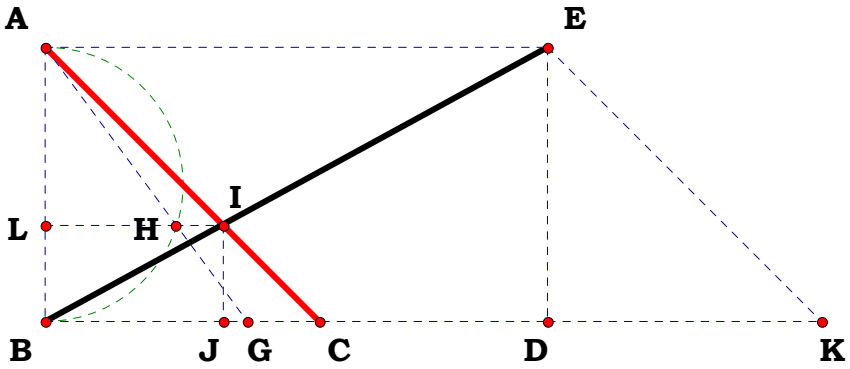
$DK := BC$

$BK := BD + DI$

$IJ := \frac{DE \cdot BC}{BK}$

$BL := IJ$

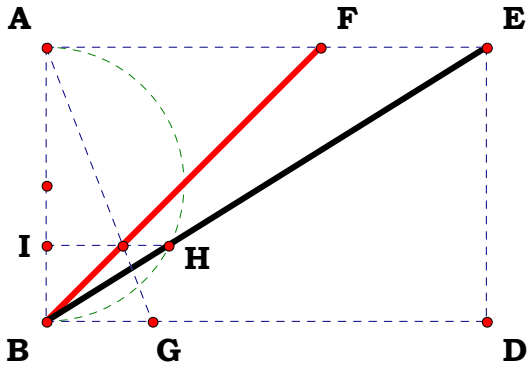
$AL := AB - BL$



$HL := \sqrt{BL \cdot AL} \qquad BG := \frac{HL \cdot AB}{AL} \qquad BG = 0.354$

$$BG - \frac{\left(\sqrt{N_1}\right)^3}{\sqrt{N_2}} = 0$$

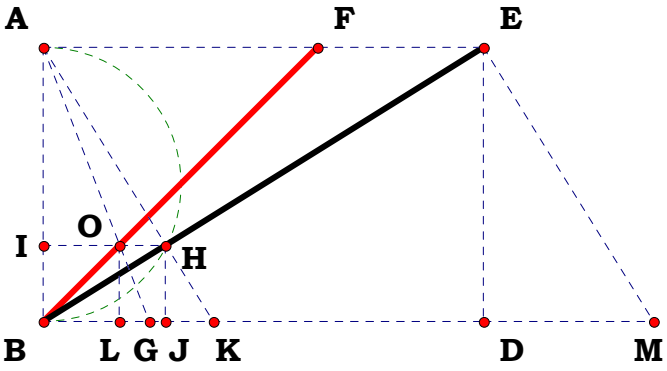
$$\frac{N_1^{\,3}}{N_2^{\,2}} = 0.04$$



$N_1 \equiv 1$ $N_2 \equiv 5$

$AB := N_1$ $DE := AB$

$AE := N_2$ $BD := AE$



$$BK := \frac{DE \cdot AB}{BD} \quad DM := B$$

$BM := BD + DM$

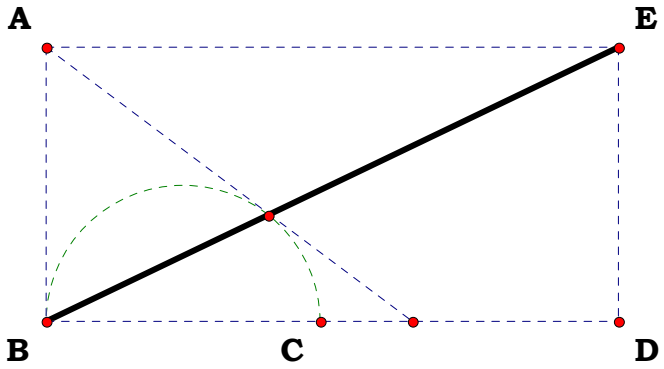
$$HJ := \frac{DE \cdot BK}{BM} \quad BI := HJ$$

$AI := AB - BI$ $IO := BI$

$$BG := \frac{IO \cdot AB}{AI}$$

$$BG - \frac{1}{N_2^{\,2}} \cdot N_1^{\,3} = 0$$

$$\frac{N_1 \cdot N_2^{\,2}}{N_1^{\,2} + N_2^{\,2} - N_1 \cdot N_2} = 1.19$$



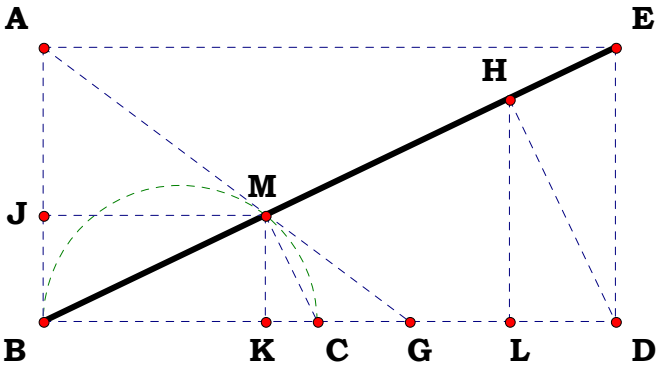
$N_1 \equiv 1$

$N_2 \equiv 5$

$AB := N_1 \quad BC := AB$

$DE := AB$

$AE := N_2 \quad BD := AE$



$$BE := \sqrt{DE^2 + BD^2}$$

$$BH := \frac{BD^2}{BE}$$

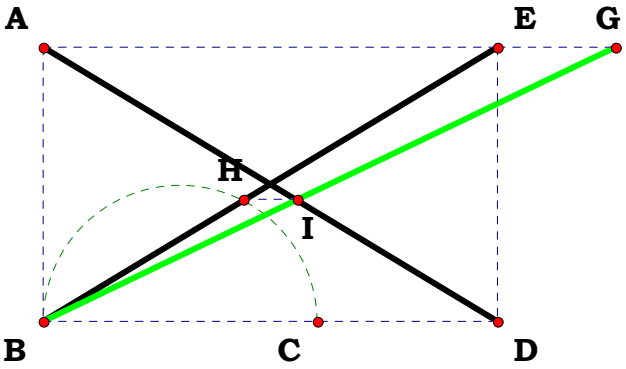
$$BL := \frac{BD \cdot BH}{BE}$$

$$BK := \frac{BL \cdot BC}{BD}$$

$$JM := BK \quad BJ := \frac{DE \cdot JM}{BD} \quad AJ := AB - BJ \quad BG := \frac{JM \cdot AB}{AJ}$$

$$BG - N_1 \cdot \frac{N_2^{\,2}}{N_1^{\,2} + N_2^{\,2} - N_1 \cdot N_2} = 0$$

$$\frac{N_2^{\,2} + N_1^{\,2} - N_2 \cdot N_1}{N_1} = 2$$



$N_1 \equiv 1$

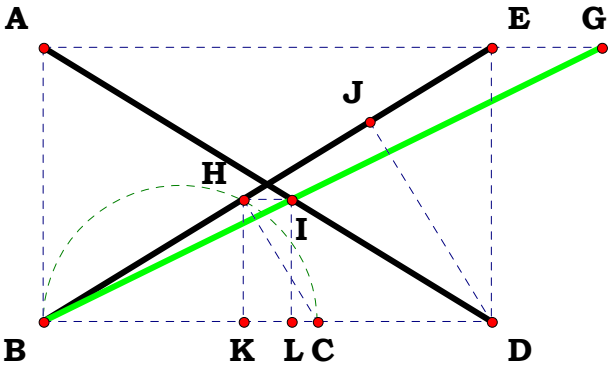
$N_2 \equiv 5$

$AB := N_1 \quad DE := AB$

$BC := AB$

$AE := N_2 \quad BD := AE$

$BE := \sqrt{BD^2 + DE^2}$



$EJ := \frac{DE^2}{BE} \quad CK := EJ \cdot \frac{BC}{BE}$

$HK := \frac{BD \cdot CK}{DE} \quad IL := HK$

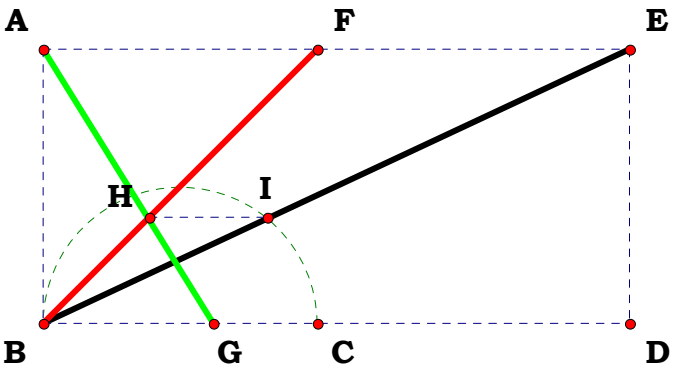
$DL := \frac{BD \cdot IL}{DE}$

$BL := BD - DL$

$AG := \frac{BL \cdot DE}{IL}$

$$AG - \frac{N_2^{\,2} + N_1^{\,2} - N_2 \cdot N_1}{N_1} = -3.553 \times 10^{-15}$$

$$\frac{N_1^{\,2}\cdot N_2}{N_2^{\,2}+N_1^{\,2}-N_1\cdot N_2}=0.238$$



$N_1 \equiv 1$

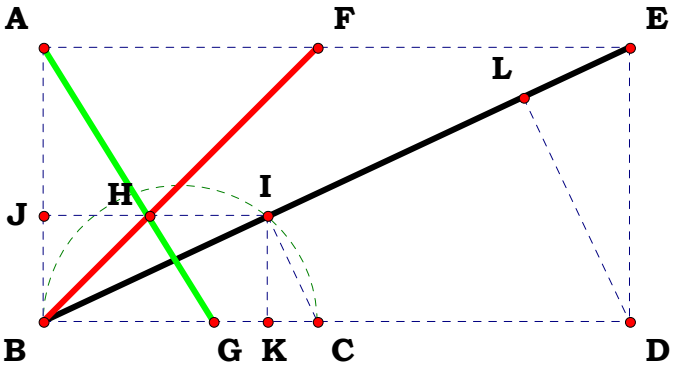
$N_2 \equiv 5$

$AB := N_1 \quad BC := AB$

$DE := AB$

$AE := N_2 \quad BD := AE$

$BE := \sqrt{BD^2+DE^2}$



$EL := \frac{DE^2}{BE}$

$CK := \frac{EL\cdot BC}{BE}$

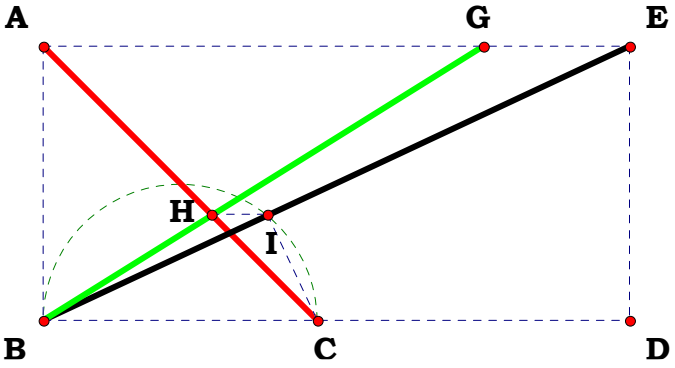
$BK := BC - CK$

$IK := \frac{DE\cdot BK}{BD}$

$BJ := IK \quad HJ := BJ \quad AJ := AB - BJ \quad BG := \frac{HJ\cdot AB}{AJ}$

$$BG - N_2\cdot\frac{N_1^{\,2}}{N_2^{\,2}+N_1^{\,2}-N_1\cdot N_2}=0$$

$$\frac{N_2^{\,2} + N_1^{\,2} - N_2 \cdot N_1}{N_2} = 4.2$$



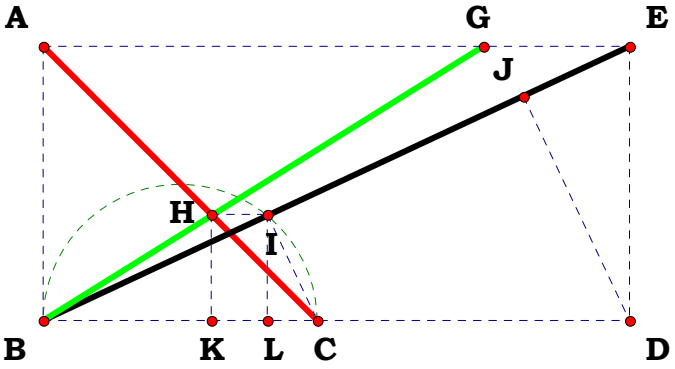
$N_1 \equiv 1$

$N_2 \equiv 5$

$AB := N_1 \quad BC := AB$

$DE := AB$

$AE := N_2 \quad BD := AE$



$$BE := \sqrt{BD^2 + DE^2}$$

$$BJ := \frac{BD^2}{BE}$$

$$DJ := \frac{DE \cdot BJ}{BD}$$

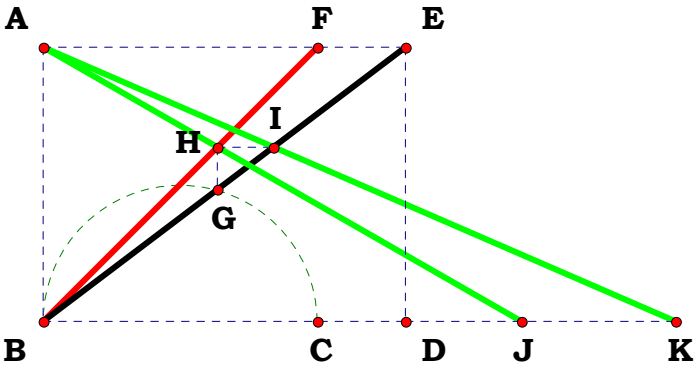
$$IL := \frac{DJ \cdot BC}{BE} \qquad HK := IL \quad CK := HK \quad BK := BC - CK$$

$$AG := \frac{BK \cdot DE}{HK}$$

$$AG - \frac{N_2^{\,2} + N_1^{\,2} - N_2 \cdot N_1}{N_2} = 0$$

$$\frac{N_2^{\,2}}{N_1} = 25$$

$$\frac{N_2^{\,3}}{N_1^{\,2}} = 125$$



$N_1 \equiv 1$

$N_2 \equiv 5$

$AB := N_1 \quad BC := AB$

$DE := AB$

$AE := N_2 \quad BD := AE$

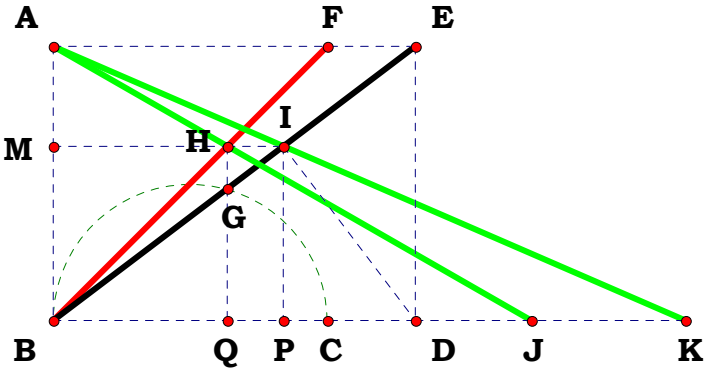
$BE := \sqrt{BD^2 + DE^2}$

$BI := \frac{BD^2}{BE}$

$IP := \frac{DE \cdot BI}{BE} \quad BM :=$

$AM := AB - BM$

$BP := \frac{BD \cdot IP}{DE}$



$IM := BP \quad BK := \frac{IM \cdot DE}{AM}$

$BK - \frac{N_2^{\,3}}{N_1^{\,2}} = 4.69 \times 10^{-13}$

$HQ := IP \quad HM := HQ \quad BJ := \frac{HM \cdot AB}{AM}$

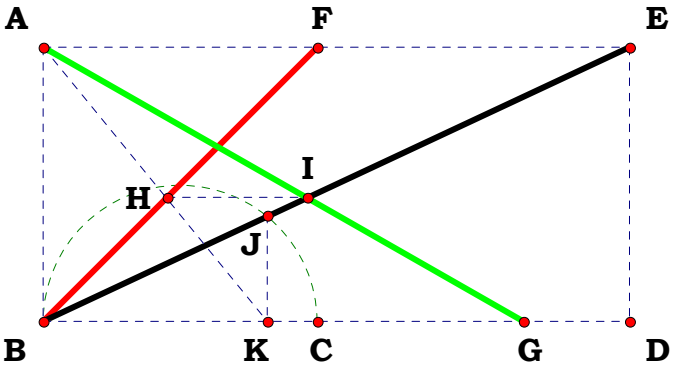
$BJ - \frac{N_2^{\,2}}{N_1} = 9.237 \times 10^{-1}$

IP

4

$$\frac{N_2^{\,3}}{N_2^{\,2}+N_1^{\,2}} = 4.808$$

$$\frac{N_1 \cdot N_2^{\,2}}{N_2^{\,2}+N_1^{\,2}} = 0.962$$



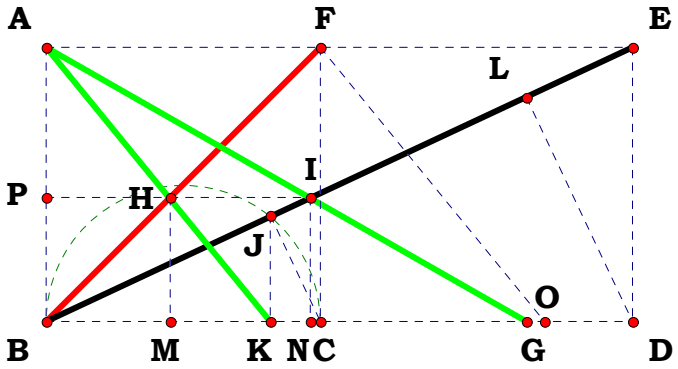
$N_1 \equiv 1$

$N_2 \equiv 5$

$AB := N_1 \quad BC := AB$

$DE := AB \quad FC := AB$

$AE := N_2 \quad BD := AE$



$BE := \sqrt{BD^2 + DE^2}$

$BL := \frac{BD^2}{BE}$

$BK := \frac{BL \cdot BC}{BE}$

$CO := BK \quad BO := BC + CO$

$HM := \frac{FC \cdot BK}{BO} \quad BP := HM \quad AP := AB - BP \quad IN := BP \quad BN := \frac{BD \cdot IN}{DE}$

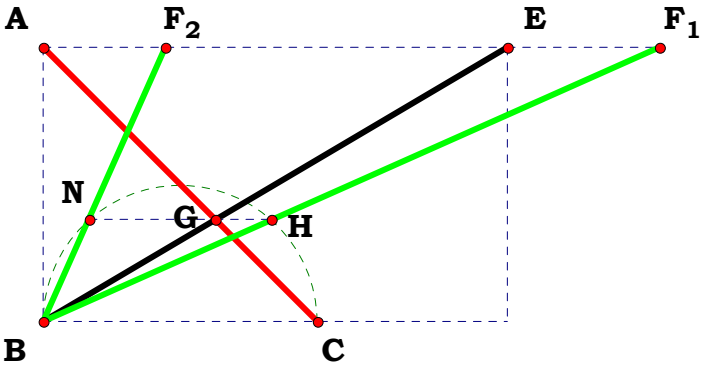
$PI := BN \quad BG := \frac{PI \cdot AB}{AP}$

$$BK - \frac{N_1 \cdot N_2^{\,2}}{N_2^{\,2}+N_1^{\,2}} = 0 \qquad BG - \frac{N_2^{\,3}}{N_2^{\,2}+N_1^{\,2}} = 0$$

Not finished.

$$\frac{N_2 + N_1 + \left[\left(N_2 + 3 \cdot N_1\right) \cdot \left(N_2 - N_1\right)\right]^{\frac{1}{2}}}{2} = 6.854$$

$$\frac{N_2 + N_1 - \left[\left(N_2 + 3 \cdot N_1\right) \cdot \left(N_2 - N_1\right)\right]^{\frac{1}{2}}}{2} = 0.146$$



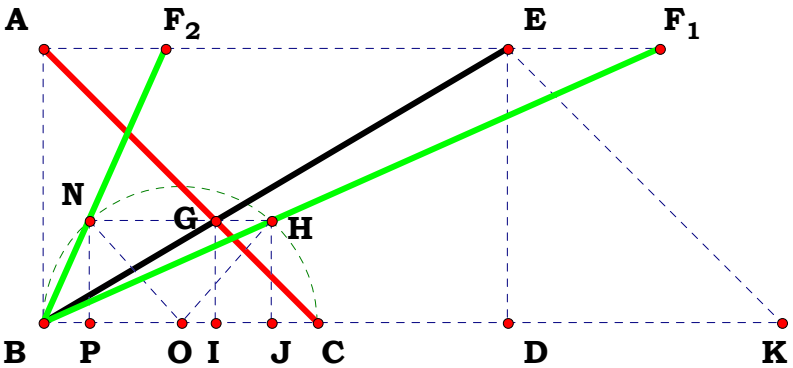
$N_1 \equiv 1$

$N_2 \equiv 6$

$AB := N_1$ $BC := AB$

$DE := AB$

$AE := N_2$ $BD := AE$



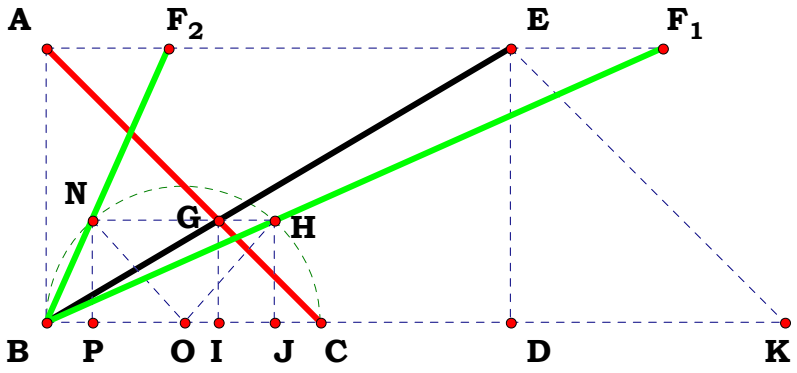
$DK := AB$

$BK := BD + DK$

$GI := \frac{DE \cdot BC}{BK}$

$HJ := GI$

$HO := \frac{BC}{2}$



$JO := \sqrt{HO^2 - H}$

$CJ := HO - JO$

$BJ := BC - CJ$

$AF_1 := \frac{BJ \cdot DE}{HJ}$

$AF_1 = 6.854$

$$AF_1 - \frac{N_2 + N_1 + \left[\left(N_2 + 3 \cdot N_1\right) \cdot \left(N_2 - N_1\right)\right]^{\frac{1}{2}}}{2} = 0$$

$BP := CJ \quad NP := GI \quad AF_2 := \frac{BP \cdot DE}{NP}$

$AF_2 = 0.146$

$$AF_2 - \frac{N_2 + N_1 - \left[\left(N_2 + 3 \cdot N_1\right) \cdot \left(N_2 - N_1\right)\right]^{\frac{1}{2}}}{2} = 0$$

As written, does not account for the full range. N1 must remain less than N2.